

ABSTRACT OF THE DISCLOSURE

The procedure of the present invention specifies predetermined elements included in a matrix F, which is obtained by Fourier transform of master image data P0 (step S122), and adds a minute variation ΔF of a predetermined magnitude to either a real number array FR or an imaginary number array FI of the predetermined elements (step S124 and S126). Here note that the minute variation ΔF should be subtracted from corresponding elements, in order to keep the symmetry of the Fourier spectrum. A resulting image obtained by an inverse transform of the matrix with the minute variation ΔF added thereto includes a phase difference pattern W01 that is embedded therein and corresponds to the minute variation ΔF . As long as a master image is closed to the public, this embedded pattern can not be taken out of the resulting image nor be deleted by overwriting attacks. Even if the processed data with the digital watermark embedded therein is exposed to overwriting attacks of different pieces of watermark information by the similar algorithm, the arrangement of the invention enables the digital watermark embedded in the master data to be taken out accurately. The similar series of processing may be carried out with regard to a specific area of the low frequency component obtained by wavelet transform of the master image.